

PROGRAM AVAILABILITY NOTICE

AMSAT



1. **ORBITS 2** - For IBM PC/XT/AT, 256k RAM memory, IBM color graphics adapter, IBM color graphics display, floppy diskette drive, one 5 1/4 inch, DOS 2.0 or later. See attached sheet. \$35 members; \$45 non-members.
2. **ORBITS 3** - Functionally equivalent to ORBITS 2 but has been designed for use with the IBM Enhanced Graphics Adapter (EGA) and Enhanced Color Display. \$45 members; \$55 non-members.
3. **N4HY QUIKTRAK 3.2** - For IBM PC, DOS 3.0 or later. No 8087 math coprocessors needed but will run much faster with it. 256K bytes of RAM. CGA color graphics is needed for only one of the myriad of functions and that is the map display routine. \$70 members; \$90 non-members. See attached sheet
4. **C-64 SUPERTRAC** - This is a combination of N4HY's Quiktrak program and enhanced graphics. This program provides sharp, clear and colorful graphics with excellent scheduling flexibility. This program also has the ability to drive commercially available dual axis rotors. Disk only. \$30 members; \$40 non-members
5. **APPLE QUIKTRAK** - Menu driven program for tracking and scheduling of amateur satellites. Incorporates a very fast algorithm for finding usable passes of the satellite of your choice. Satellite pointing angles relative to your QTH and a "window track" mode are included. The "window track" feature identifies mutual "windows" between your QTH and other specified locations around the world. Includes menu driven utilities for data entry. Requires an 80 column card and 64K. \$25 members; \$35 non-members.
6. **MACTRAK** - Written by W7HR provides tabular data output of tracking and scheduling information for up to 10 satellites. Graphic displays include rectangular, polar and great circle world maps, and there is a VIEW mode which shows earth as seen from the satellite at any time. A real-time mode will show data as it changes and is compatible with the KLM/Mirage antenna tracking interface. Data can be displayed on the screen or output to the Imagewriter printer. A propagation prediction package is also included which will calculate the maximum usable frequency (MUF) to any point, sunrise & sunset times, bearings & distances, and display the gray-line. MacTrak requires a 512K or larger MacIntosh with a double sided (800K) disk drive, and an Imagewrite printer. \$40 members; \$50 non-members.
7. **C-128** - This is the ORBITS program that is specifically written to take advantage of the unique capabilities of the C-128. ORBITS uses time-based incrementing with user-selected increments of time. This results in uniform time increments between data lines. The ORBITS Program features automatic page formatting and pagination. As many as twenty satellites may be entered into Keplerian files. It requires an 80 column monitor and a Commodore compatible printer. \$30 members; \$40 non-members.

ORBITS 2 - A compiled program providing the following features: Real-time satellite tracking in either a tabulated mode or in a graphics presentation of a world map upon which the satellites are moved. Up to eight satellites can be tracked in this mode. The map is presented in a single color of the user's choice on a black background. A single satellite can be selected and an acquisition circle will be drawn around that satellite showing its coverage. All 8 satellites will continue being moved in real-time in this mode. 2) Automatic control and tracking of antenna azimuth and elevation rotors when using the Kenpro KR-5400A/5600A rotors and the Kenpro KR-010 computer interface. This feature can be disabled by the user for those cases where it is not used. 3) Batch output for a single satellite for selected periods and update intervals. Can be presented either on the screen or printer 4) Keplerian Elements can be entered into the file for use by the Batch output function. Only the first 8 satellites will be tracked in the real-time function, however. 5) Ground station geographical data is entered under program control. The user can also choose how the map is presented on the screen, centered at 0, 90, 180 or 270 degrees longitude. 6) Extensive prompting is used throughout, including error routines to protect against improper or invalid input in response to prompts. Operating instructions are contained in a documentation file which can be printed by the user.

N4HY QUIKTRAK 3.2 - This program is a many featured satellite tracking and usage planning package. 1) It supports many antenna rotator packages 2) It has a standard interface for control of radios through the serial interface for ICOM, Kenwood, YAESU and others 3) It will gather telemetry using interrupt driven serial port device drivers written for the CBBS and WA7MBL Packet BBS system 4) Has graphics display routine which shows one satellite and the sunline and range circle, and time to AOS or LOS. We also have a graphics mode that displays all satellites in the Keplerian file on the map 5) It tracks one satellite for many cities 6) It tracks all the satellites for your QTH and gives AOS, LOS information for all of them 7) Has a dumb terminal emulator 8) Displays Equator crossing or apogee times and locations.

AMSAT

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NEWEST OSCAR READY FOR JUNE LAUNCH

Final preparations are being made to ready AMSAT's Phase 3C for launch. The most powerful OSCAR ever built will be lofted to orbit from the European Space Agency's Kourou, French Guiana launch site.

The launcher will be an Ariane 4 rocket, the largest ESA has ever flown. This will be the twenty-second flight and is designated V-22. The 300 pound AMSAT spacecraft, one of three satellite payloads on Ariane, will eventually operate from a high elliptical orbit completing just over two orbits of earth per day.

The new AMSAT satellite contains four separate transponders (repeaters) covering frequencies from 145 MHz to 2.4 GHz. A packet radio transponder is one of the four. One transponder will be capable of carrying more than 75 simultaneous QSOs. Another transponder uses FM and could be suitable for beaming bulletins for relay by terrestrial VHF repeaters.

Phase 3C will get its OSCAR designator number after it's successfully operating in orbit. That should occur about 30 days after launch.

The satellite should operate for more than 5 years. Upgraded computer memory chips are "hardened" for the severe radiation encountered in orbit.

This satellite is the third in the Phase 3 series. Phase 3B became AMSAT OSCAR 10 upon its successful launch in 1983.

On-air coverage of the June launch will originate with a network of stations around the world including ARRL HQ station W1AW. Repeater systems can link into the network via landline circuits.

Besides routine QSOs, Phase 3C will be used for so-called "Techno-Sport" activities. These on-air competitions emphasize technical skills and recognize superior ability with plaques and awards. The AMSAT "ZRO-Test" tests a station's receive sensitivity by sending successively weaker signals from the satellite. The new "SatFox Test" is a version of fox and hound transmitter hunting done by satellite. More Techno-Sports are in the planning stages.

AMSAT Phase 3C is a joint project of AMSAT N. America and AMSAT DL with additional contributions from other AMSAT affiliated organizations. The project cost more than \$400,00 US. Initial design of the Phase 3 generation of OSCARs began in the mid-seventies. AMSAT was founded in 1969.

Part 2: User Station Requirements

1.0 Mode B

1.1 Uplink requirements:

- 1.1.1 Frequency: 435.420 - 435.570 MHz
- 1.1.2 EIRP: 21.5 dBW for 20 dB peak and 10 dB average SNR on downlink
- 1.1.3 Polarization: RHC
- 1.1.4 Suitable uplink components: 10 watts to 12 dBic gain antenna

1.2 Downlink requirements:

- 1.2.1 Frequency: 145.975 - 145.825 MHz + GB @ 145.812 + EB @ 145.985 MHz
- 1.2.2 Polarization: RHC
- 1.2.3 Minimum recommended antenna gain: 10 dBic
- 1.2.4 Maximum receive system effective noise temperature: 625K (NF=5.0 dB)
- 1.2.5 Minimum figure of merit: -18 dB/K

2.0 Mode JL

2.1 Uplink requirements:

- 2.1.1 Frequency: Mode L: 1269.620 - 1269.330 MHz
Mode J: 144.425 - 144.475 MHz
- 2.1.2 EIRP: Mode L: 25 dBW for 20 dB peak and 10 dB average SNR on downlink
Mode J: 25 dBW for 20 dB peak and 10 dB average SNR on downlink
- 2.1.3 Polarization: RHC
- 2.1.4 Suitable uplink components: Mode L: 10 watts to 15 dBic gain antenna
Mode J: 20 watts to 12 dBic gain antenna

2.2 Downlink requirements

- 2.2.1 Frequency: 435.715 - 436.005 MHz + GB @ 435.651 MHz
- 2.2.2 Polarization: RHC
- 2.2.3 Minimum recommended antenna gain: 13 dBic
- 2.2.4 Maximum receive system effective noise temperature: 290K (NF=3.0 dB)
- 2.2.5 Minimum figure of merit: -12 dB/K

3.0 Mode S

3.1 Uplink requirements

- 3.1.1 Frequency: 435.601 - 435.637 MHz
- 3.1.2 EIRP: Approx 27 dBW under average Mode B AGC conditions
- 3.1.3 Polarization: RHC
- 3.1.4 Suitable uplink components: 25 watts to 13 dBic antenna

3.2 Downlink requirements

- 3.2.1 Frequency: 2400.711 - 2400.747 MHz + Beacon @ 2400.325 MHz
- 3.2.2 Polarization: RHC
- 3.2.3 Minimum recommended antenna gain: 28 dBic
- 3.2.4 Typical antenna: 1.4 m dish assuming 50% efficiency
- 3.2.5 Maximum receive system effective noise temperature: 290K (NF=3.0 dB)
- 3.2.6 Minimum figure of merit: +3 dB/K

4.0 RUDAK

4.1 Uplink requirements

- 4.1.1 Frequency: 1269.710 MHz
- 4.1.2 EIRP: 26 dBW (400 W EIRP)
- 4.1.3 Typical suitable uplink: 8 watts to 17 dBic antenna
- 4.1.4 Polarization: RHC

4.2 Downlink requirements:

- 4.2.1 Frequency: 435.677 MHz
- 4.2.2 Typical receive antenna gain: 10 dBic for 12 dB Eb/No ratio.
- 4.2.3 Polarization: RHC

8. **QUIKTRAK for TRS-80 Model 4/TRSDOS 6.0** - This is the N4HY QUIKTRAK program modified to run on the Model 4. \$30 members; \$40 non-members.

The W3IWI Tracking Program is available for the following computers. Each program provides all the data needed for tracking satellites, space shuttles, etc. in an easily understandable tabular form. All are \$25 for members; \$35 for non-members.

9. **TRS-80 COLOR COMPUTER** - 32 K, extended BASIC, cassette only

10. **TRS-80 Model 3** - 32K, one disk drive

11. **TEXAS INSTRUMENTS TI99/4A** - cassette only

12. **ATARI 400 & 800** - disk only

13. **HEATHKIT H-89** - CP/M, MBasic, 5 1/4 floppy drive. H-17 hard-sectored disk also available. Please specify.

14. **HP-41 PROGRAMMABLE CALCULATOR** - ORBIT 1 - This program will output AZ and EL in real-time or all W3IWI parameters in the prediction mode. Special requirements: HP-41C + QUAD Memory, HP-41CV, HP-41CX, Card Reader (desirable but not essential). ORBIT II - the same as ORBIT 1 with the addition of functions from the Time Module for output of time and input from the time clock in a real-time mode. Please specify ORBIT I or ORBIT II.

15. **UOSAT-OSCAR 9/OSCAR 11 DATA CAPTURE, EDITING AND TELEMETRY DECODING PROGRAM FOR IBM-PC** - A brilliant piece of work by Bob Diersing and his co-author Aaron Brown. One program does the data collection and another does the tedious chore of automatically editing the data for clean frames. Includes an outstanding manual to accompany these programs. \$35 for members; \$45 for non-members.

Program Desired/Type of Computer _____

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